

PROJECT facts

U.S. DEPARTMENT OF ENERGY
NATIONAL ENERGY TECHNOLOGY LABORATORY

Transportation Fuels
and Chemicals

11/2001

LEAD INDUSTRY PARTNER

Conoco Inc.
P.O. Box 2197
Houston, TX 77252-2197

PARTICIPANTS

Cummins Engine Company
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Columbus, IN 47202-3005

Nexant
45 Fremont Street, 7th Floor
San Francisco, CA 94105-2210

Pennsylvania State University
University Park, PA 16802-2308

COST SHARING

DOE \$13 million
Non-DOE \$13 million

EVALUATION OF NEW PROCESSES FOR THE PRODUCTION OF ULTRA CLEAN FUELS FROM NATURAL GAS

Description

Large reserves of natural gas on the Alaskan North Slope, as well as many proven reserves worldwide, are currently stranded because the cost of development, transportation or conversion to transportable liquid products is too high to be economic. Conoco, a global and integrated energy company, plans to unleash the potential of stranded gas with new innovations in natural gas-to-synthesis gas conversion (CoPox being developed in the Conoco laboratories). Thus, this huge natural gas resource base can then be converted into high quality, ultra-clean fuel that can be produced and transported to markets in the United States and around the world at a cost competitive with conventional fuels.



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Conoco will perform comprehensive life-cycle systems analysis for the techno-economic comparison of the fuels and fuel additives considered within this program. A sensitivity analysis will also be run using coal and heavy oil as the feedstock. The life-cycle results from these new technologies will then be compared to conventional fuels such as gasoline and diesel as well as to emerging fuels, such as biodiesel, ethanol, compressed natural gas, liquefied natural gas, and electric vehicles to determine the advantages and disadvantages in costs, emissions, and performance of each option.

Specified fuel performance evaluation and emissions testing will be conducted to establish a common basis of comparison using actual full-scale hardware provided by two of the leading diesel engine manufacturers and the leading fuel cell system developer. Each fuel will be tested within the context of both existing and developmental transportation systems, and the fuels will be evaluated on how well they can enter the existing distribution infrastructure.



Dodge truck with 24-valve, 5.9L "ISB" turbo diesel engine